

ENVIRONMENTAL PROTECTION AGENCY (EPA)
National Clean Diesel Funding Assistance Program (EPA-OAR-OTAQ-16-06)
FY 2016 Request for Proposals (RFP)

Project Title: Lummi Marine Diesel Engine Repower

Application Information:

Lummi Indian Business Council

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

Eligible Entity:

Lummi Indian Business Council is a federally recognized Indian Tribe and therefore eligible to apply for funding assistance through this program.

Regional Office:

EPA Region 10

Office of Air, Waste, and Toxics

1200 Sixth Avenue, Suite 900, AWT-107

Seattle, WA 98101-3140

Total Project Cost: \$422,894.20

EPA Funds Requested: \$300,606.86

Mandatory Match: \$100,202.29

Voluntary Cost Share: \$22,085

Target Fleet:

The Lummi fishing fleet is the target for this Repower Project. The Lummi fleet includes 37 marine vessels powered with diesel engines. This application includes 6 fishing vessels which represents 6 diesel engines.

Technology:

Engine Repower/Replacement

Short Project Description:

The Lummi Marine Engine Repower project will repower 6 diesel engines, on 6 marine vessels with 6 new, low-emission diesel engines. The vessels are used throughout the year in fisheries targeting salmon, halibut, crab and shrimp.

SECTION 1. PROJECT SUMMARY

The Scorecard chart of EPA's National-Scale Air Toxics Assessment ranks Whatcom County among the 80th percentile of the worst counties in the US for the number of people living in areas where cancer risk from HAPs (Hazardous Air Pollutants) exceeds 1 in 10,000. The Hazardous Air Pollutant with the highest contribution to cancer risk listed for Whatcom County is Diesel Emissions.

The Lummi fishing fleet is approximately 50% comprised of engines older than 1997. Older engines such as these have poor performance, low fuel-efficiency, and high emissions. These vessels also are heavily utilized and run an average of 1000 hours/year.

Fleet Description

Of the 37 vessels in the Lummi fishing fleet that use diesel engines for their primary propulsion, this repower project will target 6 engines from 6 vessels. All of the vessels are owned by individual tribal members. All of the engines are older than 2003, one of which is over 20 years old.

Engine horsepower for each vessel ranges from 200 HP to 315 HP, with an average of 262 HP.

Combined, the 2 vessels average over 2,000 activity hours per year (idling and travelling), and consume 5,600 gallons of diesel fuel per year.

Table1. Price Quotes for Engine Repower (Engine & Labor)

Vessel Owner	Current Engine Year	Current Engine	Current HP	Upgrade Engine	Upgrade HP	With Drive	Approximate Cost
[REDACTED]	1994	Volvo AQAD41A	200	Volvo	225	Yes	54,133
[REDACTED]	2000	Volvo KAMD44	260	Volvo	330	Yes	72,292.50
[REDACTED]	1997	Volvo KAD44P	260	Volvo	330	Yes	72,292.50
[REDACTED]	1994	Yanmar 6LY2A-STP	315	Volvo	330	Yes	72,292.50
[REDACTED]	1997	Volvo KADY43P-A	230	Volvo	225	Yes	58,850.15
[REDACTED]	2003	Volvo D6-310	310	Volvo	330	Yes	70,948.50

Project Phasing, Responsibilities and Timeline:

Task 1. Project Staffing.

[REDACTED]

Task 2: Project Planning. The Project Coordinator will further document each vessel in the Lummi fishing fleet that has been listed for repowering: including the setup of the existing engines; issues involved with removal/replacement of the engines; the availability of replacement engines, availability of replacement engines, availability of dry dock space; preferred timing for removing a vessel from service.

Task 3: Bidding. Working with the vessel owners, the Project Coordinator will acquire bids from marine engine providers for repowering vessels. The PC will evaluate the bids based on: cost, warranty, location of service for installation and warranty work, and other factors. The Project Coordinator may review the relevant circumstances for each vessel and recommend a sole source contract if individual vessel owners find that a sole source procurement process is warranted due to the unique location or configuration of their vessels and engines. Sole source contracts will only be used after providing written justification to the EPA Project Officer and receiving explicit approval.

Task 4: Installation. According to the installation schedule developed between the engine suppliers and vessel owners, the PC will oversee installation of the engines on each vessel. The PC will ensure that the installation work is done according to the bid. The PC will also be responsible for documenting the decommissioning of the old engines, which shall consist of taking a photograph of the scrapped engines

and engine serial numbers. The engines will be decommissioned by drilling a hole in the engine and manifold.

Task 5: Maintenance and Emission Reduction Planning: Upon completion of each installation, the PC will work with the engine suppliers and vessel owners to establish a Maintenance Plan for each new engine. The PC will establish a spreadsheet to store and access information relevant to regular maintenance of the repowered engines. The PC will also identify strategies for further emissions reductions.

Task 6: Sustainability and Reporting: The Project Coordinator will compile the information necessary to prepare quarterly reports and a final project to EPA. At the end of the project period, the Project Coordinator will be responsible for annual review of the maintenance and emission reduction plan.

Role and Responsibilities:

The Lummi Marine Engine Repower Project will be managed collaboratively with responsibilities shared by the Project Coordinator, the Tribal Members owning a vessel in the Repower Project, and the Engine Manufacturer/Supplies. The roles and responsibilities for each of the six tasks of the project are outlined below.

Table 2. Role and Responsibilities for Each Task.

Task	Project Coordinator	Engine Manufacturer/ Supplier	Vessel Owner
1. Project Staffing	X		
2. Project Planning	X	X	X
3. Bidding & Procurement	X	X	X
4. Installation	X	X	X
5. Maintenance/Emission Reduction Planning	X		X
6. Sustainability & Reporting	X		

The project will take over twenty-two months. The anticipated start date is upon Award Funding in January 2017, and the project will be completed by October 30, 2018.

Table 3. Project Timeline (Jan 2017 – October 2018).

TASK	2017				2018			
	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct
1. Project Staffing								
2. Project Planning								
3. Bidding & Procurement								
4. Installation								
5. Maintenance/Emission Reduction Planning								
6. Sustainability & Reporting								

Mandated Reductions:

Pursuant to 42 U.S.C 16132(d)(2), no funds are requested under this RFP to meet mandated emission reductions. In Washington State, emissions reductions programs for diesel are voluntary.

SECTION 2. ENVIRONMENTAL RESULTS – OUTPUTS & OUTCOMES

Table 4. Anticipated Outputs and Outcomes

Activities	Outputs	Outcomes
Enter into Cooperative Agreement with EPA	6 high-emission diesel engines removed from operation	Immediate: Annual reduction in NOx emissions
Identify vessel owners	6 vessels and engines will be replaced	Immediate: Reduction in acute respiratory and pulmonary health risks to vessel operations/tribal fishermen & fisherwomen
Prepare vessels (access, wiring, gears, piping) and install new engines	6 new diesel engines that meet Tier 3 Federal Emission Standards	Immediate: Annual reduction in PM2.5 diesel emissions
Develop project reports	Analysis of project results	On-going: Reduction in airshed of Total Suspended Particles (TSP) level and reduction in Particulate Matter (PM10)
		On-going: Cost savings to vessel owners for reduced fuel costs
		Long-term: Reduced carcinogenic and mutagenic risk to vessel operations & tribal fishers

SECTION 3. PROGRAMMATIC PRIORITY - LOCATION

N/A

SECTION 4. PROGRAMMATIC PRIORITY – DIESEL REDUCTION EFFECTIVENESS

Repowering 6 diesel engines of the Lummi marine fleet with 6 low emission diesel engines will reduce diesel emissions from the current NOx and PM2.5 for the next 25 years. Over the 25 year lifetime of the repowered engines, diesel emission will be reduced for NOx and for PM2.5.

SECTION 5. OTHER PROGRAMMATIC PRIORITIES

As a federally-recognized Indian Tribe, the Lummi Nation and its homeland, the Lummi Reservation, is included as a *“minority or low-income community that may bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies.”*

Risk Factors for the Lummi Community: The individuals impacted by the Lummi Marine Engine Repower project are considered an *“environmental justice”* community, or in public health terms, a *“vulnerable population.”*

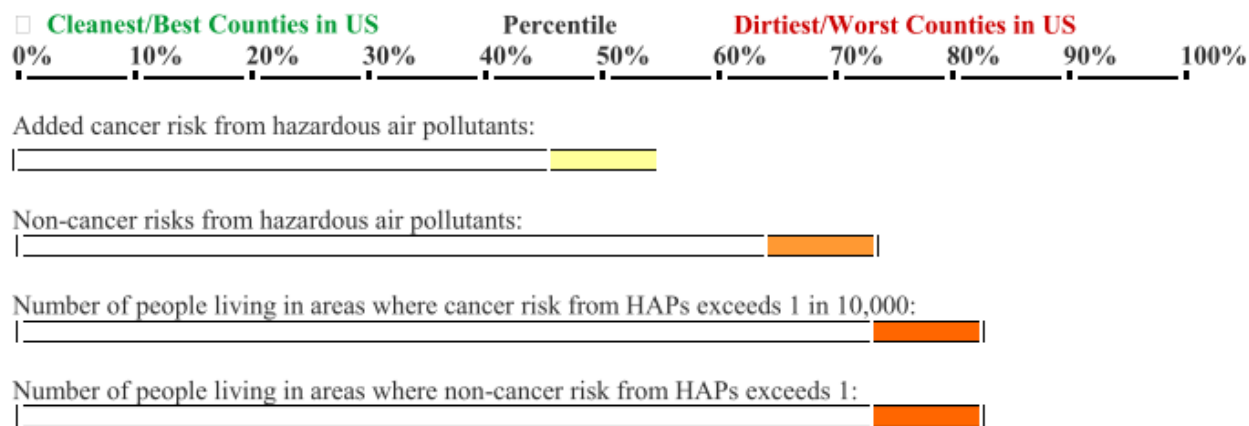
The enrolled Lummi Nation tribal population is 5,005 and the Indian population living on or near the reservation is approximately the same amount. The active health clinic user population exceeds 5,005 as the clinic serves Lummi Nation tribal members and other federally recognized Indians living within the

external boundaries of the Lummi Indian Reservation. The leading causes of death are heart disease, malignant neoplasm, cerebrovascular disease, motor vehicle accidents and digestive diseases.

Cancer survival data reveal that American Indians and Alaska Natives (AI/AN) people have the poorest survival of any racial group for all cancer sites combined. Cancer is the third leading cause of death for AI/AN for all ages, and the second leading cause of death for American Indians over the age of 45. With incidence rates increasing AI/AN communities, the need for comprehensive disease prevention efforts and cancer related research to understand the disparities in cancer health is a top priority (<http://www.npaihb.org/about-us-2/member-tribes/lummi-nation/>).

Diesel emissions are the predominant source of cancer risk in Scorecard's assessment of hazardous air pollutants. Inclusion of diesel emissions in EPA's National-Scale Assessment of Air Toxics has completely transformed our scientific understanding of which chemicals and pollution sources are responsible for the largest part of the air toxics problem. Previous analyses (such as EPA's Cumulative Exposure Project) have focused only on hazardous air pollutants listed under the federal Clean Air Act and did not include diesel emissions. Now that estimates of diesel particulate concentrations are available from NATA, it is clear that the cancer risks from diesel emissions are approximately ten times higher than the cancer risks from all other hazardous air pollutants combined. For the U.S. as a whole, the average cancer risk associated with diesel emissions is 580 per million – 80% of the total estimated cancer risk from all hazardous air pollutants (740 per million).

Table 5. National-Scale Air Toxics Assessment: Whatcom County



As shown in the Scorecard chart of EPA's National-Scale Air Toxics Assessment (2012), Whatcom County ranks among the 80th percentile of the worst counties in the U.S. for the number of people living in areas where cancer risk from Hazardous Air Pollutants (Haps) exceeds 1 in 10,000. The Hazardous Air Pollutant with the highest contribution to cancer risk listed for Whatcom County is **Diesel Emissions**.

The predominant sources of PM in the immediate vicinity include 736 Tons of PM₁₀ in 2012 from the Intalco Aluminum Plant at Cherry Point. This is in addition to the 93 Tons PM₁₀ from the BP Refinery also located at Cherry Point.

In the broader community and regional-level airshed, diesel exhaust appears again as a significant emission sources. In the Puget Sound region, 78% of air toxics are made up of diesel exhaust/PM (*Puget*

Sound Air Toxics Evaluation, 2003). Maritime emissions account for nearly 40% of diesel emissions, with commercial and marine traffic a prevalent part of Puget Sound commerce.

Project Cost Effectiveness: EPA will be spending \$300,606.90 on this project. The health benefits derived from eliminating NOx and PM2.5 over the next 25 years are problematic to quantify using the Diesel Emission Quantifier, but are considered by this at-risk population to be substantial.

Project Sustainability: In order to maximize the useful life of the new engines in the Lummi fishing fleet, the Project Coordinator will be responsible for creating a database with engine maintenance plans specific to each vessel, engine manufacturer, and engine type. The Emissions Reduction Plan will include specific strategies for fuel conservation. These will include for example: a) compliance with annual maintenance plan to ensure long-term performance, and b) using workflow calculations to help vessel owners optimize fuel management systems.

SECTION 6. REGIONAL SIGNIFICANCE

N/A

SECTION 7. PAST PERFORMANCE-PROGRAMMATIC CAPABILITY AND REPORTING ON RESULTS

[REDACTED]

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

SECTION 8. STAFF EXPERTISE AND QUALIFICATIONS

Project Coordinator – [REDACTED]

- A. Areas of expertise: Over 20 years service in the Lummi Natural Resources Department, former commercial fisherman, U.S. Navy Veteran, and Lummi Tribal Member. Furthermore, he was the Project Coordinator for the on-time and on-budget Lummi DERA Phase 2.
- B. Skills applicable to project: Former commercial fisherman and Lummi Tribal Member, familiar with commercial fishing engines and with the Lummi vessel owners who use them. As the Lummi Nations Water Resources Manager, intimately familiar with the environmental concerns of the Lummi Nation. Through years in the Natural Resources Department, has hands-on expertise in project management, grant management, program budgeting, data management and reporting, and working with individuals of diverse backgrounds.

SECTION 9. BUDGET DETAIL

Table 6. Proposed Budget

	EPA Funds	Match	Cost Share
PERSONNEL			
[REDACTED]			[REDACTED]
[REDACTED]			[REDACTED]
FRINGE			
[REDACTED]			[REDACTED]
[REDACTED]			
Total Fringe			\$4,831
CONTRACTUAL			
Engines, Related Parts and Labor	\$300,607	\$100,202	
Total Contractual	\$300,607	\$100,202	
INDIRECT CHARGES			
N/A			
Total Indirect	\$0	\$0	\$0
TOTAL FUNDING	\$300,607	\$100,202	\$22,085
TOTAL PROJECT COST	\$422,894		

TABLE 7. COST SHARE & MATCH DESCRIPTION

Personnel	<div></div> <div></div> <div></div> <div></div>
Fringe	<div></div> <div></div> <div></div>
Contractual	Section 1, Table 1 summarized the engine types, quantity, and price (including parts and labor). These bids totaling \$400,809,000 (25% being \$100,202) were collected to determine the aggregate cost.
Indirect	<div></div> <div></div> <div></div>